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Everyone Goes to School in Indonesia

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"Get in There and Fight!"—A Balinese trains battling crickets, who live in bamboo houses between bouts. He goads the insect to combat with a stick. At left, crickets flex muscles by bouncing up and down on twigs stuck into a coconut. Like boxing in America, cricket-fighting entertains thousands in Indonesia (page 26).

HORACE BRISTOL, EAST-WEST

A NATIONAL GEOGRAPHIC MAP

Radio Republik Indonesia hammer home the message. Planes of the Indonesian Air Force showered millions of leaflets. Each candidate is assigned a symbol: a flower, leaf, or geometric figure. In voting, an illiterate simply puts his fingerprint opposite the symbol representing his candidate.

Indonesia is a chain of volcanic islands stretching along one-eighth of the world's circumference. Some 3,000 chunks of land, large and small, scatter along the Equator as far as from Maine to California, and spread a thousand miles from north to south. Electoral officials will travel into Borneo jungle, through sparsely settled Celebes, through rice-rich Bali, to the spice isles of the Moluccas.

Indonesia patterned its constitution after that of the United States and studied the 1952 election. Its leaders see parallels between their country and the America of 1789, also born in a revolution against colonialism. Like early Americans they wish to avoid "foreign entanglements" and so try to steer clear of cold war issues.

The Islamic religion (90 per cent of Indonesians are nominally Moslem), and the people's fierce love of freedom form bulwarks against communism. But certain conditions help infiltration. Louisiana-sized Java, most populous area on earth, has nearly 1,000 mouths to feed in every square mile; and each year the population swells by 800,000. Some Javanese have been resettled on neighboring Sumatra, comparable in size and population to California. But Sumatra, rich in natural resources, has suffered sharp drops in rubber and tin prices.

Splendidly presenting America's case in Medan, Sumatra, is Myrtle Thorne, of Charleston, South Carolina, Director of the U. S. Information

UMI

Everyone Goes to School in Indonesia

There is a new sound heard everywhere in Indonesia. Travelers have reported it in Djakarta, the capital; in Medan, Sumatra's second city; and elsewhere in the sprawling republic off southeast Asia.

The new sound is a voice reciting aloud from a primer as almost literally the entire nation teaches itself to read and write. Citizens are readying themselves for the forthcoming election—the first free political expression of their lives. "Soon I can judge issues for myself," beamed a 42-year-old taxi driver, looking up from his ABC's.

Nationhood Explodes, 1945—On August 17, 1945, Indonesia exploded into nationhood, unprepared and in perilous times. Threatened by armed force from without, by strife, terrorism, and economic chaos within, the newborn nation struggled to its feet. It had to staff its administration with men not only new to government but who could not even read the forms they used. It sought to safeguard the nation's health with but one physician for every 70,000 persons.

Education was the most urgent and basic task. In 1930, 93 per cent of the people could neither read nor write. In 1940, 70,000,000 people produced but 240 high school graduates.

Fired by independence and the goal ahead, people and government pitched in to collect funds, train teachers, build schools. In eight years the staggering percentage of illiterates tumbled to below 60 per cent. Schools multiplied fifteen times in some areas. All over the nation, sixth most populous in the world, people hungered for learning. *Sardjana,* Indonesian word for "scholar," also means "good man."

In towns and cities travelers meet hordes of little boys in fresh-laundered blue shorts and girls with braids wearing neat Mother Hubbard dresses, each carrying a blue copybook. Teen-agers throng technical schools. University of Indonesia enrollment zoomed tenfold in seven years.

Every available building is jammed three shifts a day—elementary school in the morning, secondary in the afternoon, adult education at night. Other students sit near radios with pencils poised, taking radio correspondence courses. "Doctor of Letter-Blindness" is the picturesque title given to literate mechanics, clerks, shopkeepers, scientists who volunteer their spare time to teach their fellow citizens.

Language Unifies—Mass education is unifying the country under its own Indonesian language, based on Malay. Replacing a babel of regional languages and dialects, this eliminates both Dutch—to Indonesians the symbol of colonialism—and Japanese, forced at bayonet point in World War II. English is now the second language.

The Ministry of Information is putting the new reading ability to work preparing the nation for its first general election, to be held February 1, 1955. Pamphlets, posters have been distributed, songs composed, films and dance dramas produced on the election theme. Public lectures and

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seen flitting among cherry orchards and berry patches of central New York in summer, fly to Central America when cold weather approaches. Even the ruby-throated hummingbird, the size of a large moth, braves 500 miles of open water to exchange its Gulf States home for Yucatán.

Airline pilots need expensive, complicated instruments to guide them to their destinations. But not birds. How do they know where to go, and how to get there, and how to get back? Even talking birds—the stay-at-home mynah and parrot—are silent on the subject.

Naturalists band birds, follow their flight in airplanes, study their habits. Amateur bird watchers, waiting patiently behind bushes or in the lee of sand dunes, add to our knowledge. Findings indicate that birds use landmarks and the sun to guide their flight. Still unsolved is how they set courses at night.

Birds are not alone in finding their way compassless about the world. We hear frequently of cats, footsore but resolute, who return hundreds of miles to their old homes. Lost dogs find themselves. The "beeline" is no myth; it's the route over which the honeymaker carries its cargo from flower to hive. Bees navigate by the sun, as do ants and spiny lobsters.

Though man has made giant electronic strides in recent years with radar, sonar, and loran (long range navigation) techniques, he still has much to learn from birds and animals as pathfinders. Continued study may one day clear away the fascinating mystery of the bird's secret compass.

References—"A New Bird Immigrant Arrives," *National Geographic Magazine*, Aug., 1954; "The Bird's Year," June, 1951; see *Birds* in the *National Geographic Magazine Cumulative Index*.

In a Flurry of Black and White, Lesser Snow Geese Speed over a California Field

PAUL J. FAIR

Service there. *National Geographic* staffmen just back from the East, watched her distribute booklets and show movies on health, education, and democracy.

Speaking the local language, this pert little miss (five feet two, 108 pounds—"as long as I don't eat too much rice") sells America to friendly villagers who invite her to share their food and dancing.

References—Indonesia appears on the National Geographic Society's map of The Far East. Write the Society, Washington 6, D. C., for a price list of maps. "Republican Indonesia Tries Its Wings," *National Geographic Magazine*, Jan., 1951; "Postwar Journey Through Java," May, 1948; "Face of the Netherlands Indies," Feb., 1946; "Keeping House in Borneo," Sept., 1945; "Seafarers of South Celebes," Jan., 1945; GEOGRAPHIC SCHOOL BULLETINS, May 3, 1954, "Java Restores Its Ancient Temples." *(School and Library discount price for Magazine issues a year old or less, 50¢; through 1946, 65¢. Send for price list of earlier issues.)*

East Meets West—For cool comfort this Soerabaja businessman compromises between Javanese and European dress.

THREE LIONS

Migrating Birds Set Compass Courses South

A black V cuts across a silver moon; a flying mass gabbles through the sunset haze—birds are winging south.

Every autumn vast clouds of snow geese honk into the blue to join ducks, finches, thrushes, sandpipers, swallows, thousands of species, in the great migration from northland to warmer climes. In the spring, traditionally led by the robin, they return.

Year after year birds make the same trip. Each species begins its semiannual move virtually on the same date each year, regardless of weather, following routes so consistent they can be marked on maps. One favorite North American flyway closely follows the Atlantic coast; others, the Mississippi River, the Great Plains, and the Pacific Coast.

From its summer home north of Hudson Bay the Arctic tern cruises nearly 12,000 miles to the Antarctic. The golden plover pinpoints New Zealand on a 7,000 mile hop from Alaska, while its Alaskan neighbor, Sabine's gull, winters on the coast of Peru. Scarlet tanagers and warblers,

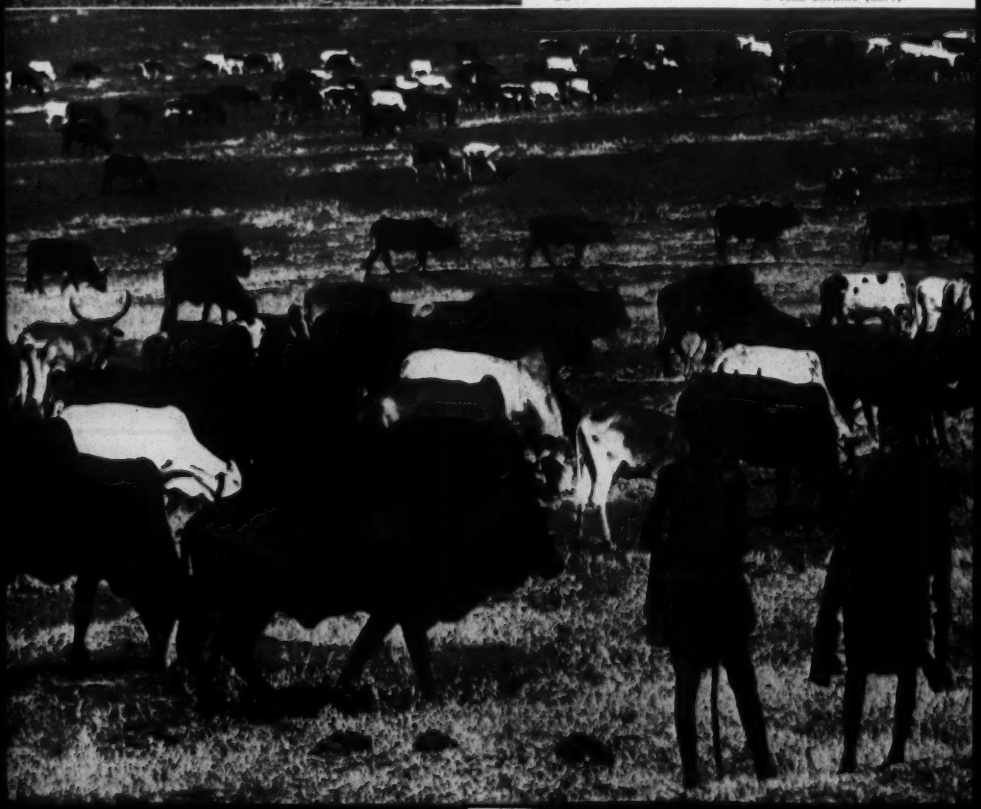
wear lion's-mane trophies as proudly as American youths display football letters.

Zebulike cattle (below) overgraze the vast ranges in southern Kenya and northern Tanganyika. Warriors cut the animals' jugular veins and drink the blood—their only source of salt. Wealth depends on number, not quality, of the cattle. Texas range barons will be surprised to learn that Engai, the sky god, has given the Masai all the world's cattle.

Slave traders and missionaries alike have enjoyed little success among the Masai. Once the terror of East Africa, the tribe raided cattle-owning neighbors and ambushed caravans. British supervision now outlaws raids.

In deepest Masailand it still is considered degrading to work for white men. Cooperation must be wooed before outsiders can take photographs such as these from the Edgar M. Queeny-American Museum of Natural History Expedition. For the full, color-illustrated story of this photographic safari, see "Spearing Lions with Africa's Masai," in the October, 1954, issue of the *National Geographic Magazine*.

© VERA WATKINS (LEFT)



UMI

The Proud Masai, Cattle Kings of Kenya

Never conquered, overlords of two sub-tribes, fearless spear-flinging lion hunters, possessors of great herds of humped cattle, the Masai preserve a bit of the Iron Age in changing Africa.

They kindle fires by friction (above) and have no use for the wheel or a written language. They disdain white man's "progress" except for such things as copper wiring to ornament their women (above left).

Center of tribal structure is the *moran*, a young warrior group whose members try to outjump each other in ceremonial dances preceding the lion hunt (left). Successful hunters wear lion's-mane trophies as proudly as American youths display football

2:20 A.M. The *Titanic* disappeared beneath the waters. Lives lost: 1,517, in peacetime's greatest sea disaster.

Again Arctic death had struck sea lanes of the Temperate world.

Ice Patrol Counterattacks—Retaliation came swiftly. The International Ice Patrol, born in 1913, sent U. S. Coast Guard vessels north to track down marauding icebergs.

As bush pilots opened Canada's vast northland, weather stations sprouted at isolated Hudson Bay posts. Later weather ships patrolled lonely beats, spying out the Arctic's atmospheric campaigns.

With World War II came the big push. Giant four-engined bombers lumbered off icy runways at Gander, Newfoundland, and Goose Bay, Labrador, on their way to British bases, many via Greenland and Iceland.

GI's stood vigil in icebox outposts. American weathermen fought the Nazis meteorologically. Occasionally shooting broke out. The guns of the icebreaker *Eastwind* sank one German weather ship off eastern Greenland and captured another. Air and military bases mushroomed in Alaska and the Aleutians to stave off Japanese attack.

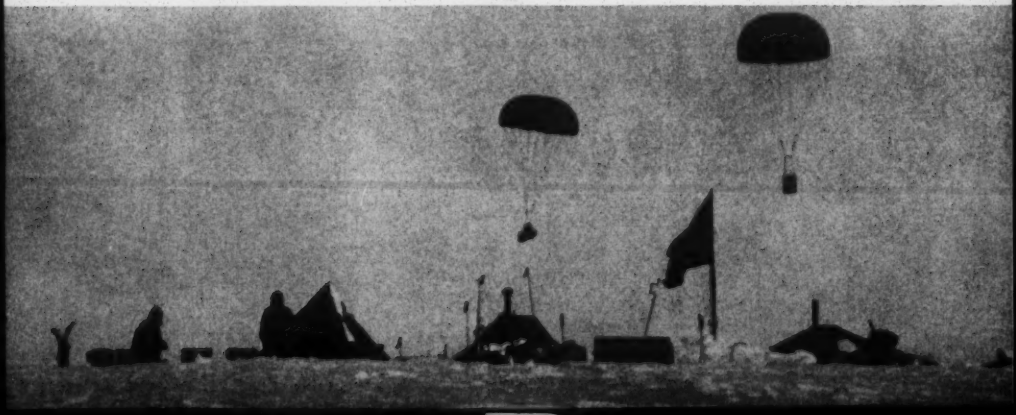
War's end saw no letup in America's push into the hemisphere's attic. In 1946 Congress and the Canadian government gave the green light to a chain of five jointly-operated stations to be spotted across the jumble of big islands where North America fronts the Arctic Ocean. Resolute, on Cornwallis Island, and Eureka, on Ellesmere, were first in 1947. Then came Mould Bay and Isachsen in 1948, installed entirely by air, and reached by flying north of the North Magnetic Pole. Alert, highest in latitude, built in 1950, sits just 530 miles short of the Pole, so far north that it makes southerners of even the hardiest Eskimos.

The cold war with Russia intensified military interest in polar frontiers. Men and equipment were put through grueling tests in the Arctic. A three-ringed radar warning system is a-building in Canada. Midway between Moscow and Washington, D. C., Thule, big brother of Arctic air bases, was carved out of northwest Greenland's rock and ice in 1951-53 for a cool $300,000,000.

But while Thule's planes and radar stand poised against Russia's mighty airbase in Franz Josef Land, American and Canadian weathermen swap information with their Russian counterparts in stations girdling

Air-dropping Supplies on T-3—This floating ice island, drifting 2,400 miles in six years, carried a U. S. polar research camp to within 100 miles of the North Pole.

M. F. BRINEGAR



GILBERT GROSVENOR

Cape Columbia (foreground), America's Farthest North—United States–Canadian weather station Alert breaks Ellesmere Island's barren bleakness 38 miles to the south.

Weathermen Push into the White North

10:30 P.M., 14 April, 1912. The *Titanic* raced through the cold, black waters of the North Atlantic on her maiden voyage. Lights blazed from every porthole. Captain E. J. Smith ignored radioed ice warnings in seeking a speed record.

11:30 P.M. Crewman Frederick Fleet shivered in the crow's-nest. As he peered ahead he could hear the rasping, spark-gap voice of the new-fangled wireless.

11:40 P.M. A ghostly white mass loomed through the darkness. Fleet's eyes bulged. He yanked the bell cord three times and screamed into the intercom to the bridge: "Iceberg! Dead ahead!" First officer Murdock spun the wheel hard over, shoved the engine-room telegraph to STOP, then FULL SPEED ASTERN. Too late. The *Titanic* struck the iceberg, but so gently that many never noticed. Card players continued their games. Some dancers didn't miss a beat of the ragtime music.

11:50 P.M. Liner's double bottom gashed 300 feet. Ship sinking. Radio operator began tapping CQD. Later he intermingled the new SOS. Women and children were ordered into lifeboats. Bandsmen braced themselves on the sloping deck to play. As lifeboats were lowered many a husband parted from wife with a quiet "I'll see you in New York." Some women chose to die with their husbands.

2:10 A.M., 15 April, 1912. Band switched from songs to hymns. People clung to each other. Some slid off steeply sloping decks.

2:15 A.M. Band played "Nearer My God to Thee." Passengers sang.

Who Will Patch Britain's Thatch?

Britain's cottages are losing their hair! The quaint thatch roof that sheltered Shakespeare's bride no longer tops the average village home.

True, Ann Hathaway's cottage near Stratford on Avon, and that of Scottish poet Robert Burns near Ayr, are kept in the original thatched state. Also thousands of other centuries-old houses still rear shaggy crowns of wheat straw or Norfolk reed above gardens gay with roses and lilies, but their number is dwindling.

Home-grown roofs are giving way to slates, tiles, and asbestos shingles for numerous reasons. Fire insurance on crew-cut cottages is five to seven times as high as on new-style buildings. A law forbids roofing new houses with the traditional covering of olden days.

Perhaps thatch's greatest deterrent has been lack of thatchers. Young men returning from years of war have taken up work more quickly learned and higher paid. Most thatchers today are mature men who learned the trade in prewar days, often from fathers or grandfathers. It is a traditional craft in some families, a secret cherished from generation to generation. This makes it hard for an outsider to break in.

Now because of shortage of skilled thatchers, the British government is sponsoring an apprenticeship program under its equivalent of the "GI bill." A woman has joined some 800 men in the Association of Master Thatchers. An ex-Flight Officer, she was fascinated by the sight of a venerable worker mending thatch. The idea of a pleasant outdoor occupation appealed to her and she persuaded the thatcher to teach her his trade. Never in all his 70 working years had he heard of a woman thatcher. Nevertheless, he consented to take her as a pupil. She is now a Master Thatcher in good standing and enthusiastic about her work which she considers "easier than housework."

MAYNARD OWEN WILLIAMS

Besides its rustic charm the thatch roof has practical advan-

ROBERT E. PEARY

Peary's Men Mush Through Crested Ice Floes—A 37-day dogsled dash from Cape Columbia took Commander Robert E. Peary to the North Pole, April 6, 1909.

Arctic Siberia. In meteorology no "ice" curtain severs east from west.

This past spring RCAF "Flying Boxcars" airlifted 655,000 pounds of supplies and equipment from Resolute to Mould Bay on Prince Patrick Island, and to Isachsen whose ice strip is scraped out on Hole-in-Fog Bay on Ellef Ringnes Island. American ships and planes from Thule, Greenland, service the Ellesmere Island stations of Eureka and Alert. At Alert, overlooking Dumb Bell Bay, 150 days of blazing all-night sun offset 132 of pitch blackness for the handful of Canadians and Americans who year round take the pulse of the Arctic's weather.

Cut off from the outside world most of the year, these weathermen look forward eagerly to the arrival of supply planes and the hippo-beamed icebreakers that punch out a path for supply ships.

This has been a banner year for icebreakers. The Navy's *Burton Island* and the Coast Guard's *Northwind*, guided by helicopters, chewed through icelocked M'Clure Strait for the first time. One more channel of the fabled Northwest Passage, sought since the days of John Davis and Henry Hudson, has been opened.

But the resentful Arctic strikes back at man's continued inroads. En route from Thule to Alert on a supply mission this fall, the *Eastwind* was crippled by ice. The *Westwind*, sent in relief, froze in pack ice off Alert. The Coast Guard was shutting down ship for the winter when it broke free. The retreating icebreakers turned their supplies over to the USAF in Thule to be airlifted into Alert.

References—Polar regions are shown on the Society's map, The Top of the World. "The Peary Flag Comes to Rest," *National Geographic Magazine*, Oct., 1954; "Three Months on an Arctic Ice Island," April, 1953; "Far North with 'Captain Mac,'" Oct., 1951; "Milestones in My Arctic Journeys," and "Nomads of the Far North," Oct., 1949; "Americans Stand Guard in Greenland," Oct., 1946.

tages. The layers of matting act as insulation, keeping out summer heat and winter's icy blasts. Usually the materials are easily gathered near by.

British thatchers use bundles of wheat straw or tougher Norfolk reed. These are pegged to a lacework of ash or hazel poles laid over the rafters. The rows start at the eaves and overlap like ordinary shingles or a well-made wig. They are fastened down with tarred strings, straightened with a wooden comb, and sometimes overlaid with strips of split hazel or willow. The use of wire is a modern innovation.

A good thatching job takes one man two or more months and lasts 25 to 50 years, with minor repairs every 10 or 12 years. New thatch is laid over the old, adding warmth and protection and piling up over the centuries to a thickness of several feet.

Early American colonists laid thatch roofs over their log cabins and split-board cottages. The first "Quonset huts" in America were erected in Massachusetts by the Pilgrims who wove straw and reeds over an arched framework of poles. The Indians called these domiciles English wigwams.

Vanished from America, thatch roofs in England may eventually follow the coach and four into oblivion.

References—The Society's map of The British Isles. See "Founders of Virginia," *National Geographic Magazine*, April, 1948; "Summering in an English Cottage," April, 1935; Vagabonding in England," March, 1934; "Britain Just Before the Storm," Aug., 1940; "England's Sun Trap Isle of Wight," Jan., 1935; "The Mist and Sunshine of Ulster," Nov., 1935; "Visits to the Old Inns of England," March, 1931.

Thatched Gables Rise Behind the Hedgerows—On a winding English lane, a rambling cottage opens vine-garlanded doors to visitors seeking the traditional tea and crumpets. America's ultra-modern "split-level" dwellings take a cue from such up-hill-and-down-dale thatch cottages sprawling along England's hedge-bordered country byways.

MAYNARD OWEN WILLIAMS